Mimulus Memo

California Native Plant Society
KERN CHAPTER

JANUARY 2024

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EVENTS

JANUARY

18 – ANNUAL POTLUCK
Meeting 6:00 – 8:30 pm

FEBRUARY

15 – Meeting 6:00 – 8:30 pm
Program: Water-wise Plantings

MARCH

21 – Meeting 6:00 – 8:30 pm
Program: Nature Conservancy Randall Preserve

Exciting News from Kern CNPS!

by Sabrina Mehtabuddin, Dec. 16, 2023

WE'RE THRILLED TO SHARE THAT THE **KERN CHAPTER** OF the **California Native Plant Society** has secured a significant grant from the State CNPS! ***The Grants For Chapters In Financial Need Committee*** met on Monday, Dec. 4, where they reviewed and deliberated on various grant proposals.

The approved grant of **$15,149** will empower **Kern CNPS to establish a native plant nursery** in partnership with the **Panorama Vista Preserve**. This nursery, located within the Preserve, aims to foster education regarding native plants and promote native plant horticulture in Kern County.

Kern CNPS will keep you updated on the progress throughout 2024, with exciting possibilities on the horizon, including featuring plants cultivated in our nursery in the 2024 plant sale. **Stay tuned for more news** as we celebrate the growth of native plants in Kern County!

If you would like to contribute to this project, please contact **Sabrina A. Mehtabuddin**, Vice President of Kern CNPS, at sabrina.mehtabuddin@gmail.com. ✿

Ellen Cypher: Noted Botanist and Ecologist, Friend of Endangered Species and "Gift" to Kern CNPS

by Nancy Nies

AS ELLEN CYPHER AND HUSBAND BRIAN PREPARE TO MOVE to Northern California from Bakersfield, their home of more than three decades, it is appropriate to look back on Ellen's life and many achievements in botany, to appreciate all she has done for the rare and endangered plants of our region, and to see why she hasbeen called *"a gift"* to the **Kern Chapter** of the **California Native Plant Society.**

The California Native Plant Society is a non-profit organization dedicated to the conservation of California native plants and their natural habitats, and to increasing the understanding, appreciation, and horticultural use of native plants.

A student of nature from childhood

Ellen's story begins in rural upstate New York, on the sixty-acre "*hobby farm*" where her avid-outdoorsman father — a biologist who developed treatments for viral diseases — raised large-scale gardens and a few cattle and pigs. Ellen's mother also loved nature, especially bird-watching. She gave Ellen a love of reading, and taught her to cook, sew, and preserve meats and produce from the farm. As a child growing up in the countryside, Ellen spent much time in the out-of-doors, "*exploring the fields and forests with my Peterson's guide*," she says.

With this background, it is perhaps no surprise that as a sophomore in high school, Ellen was particularly drawn to biology. She received her A.S. in Math-Science at **Hudson Valley Community College** in 1979, after taking a year off to work in a lab, cleaning glassware, to finance her further education. That same year, she began studying at the **State University of New York College of Environmental Science and Forestry, State University of New York**, in Syracuse, graduating magna cum laude with a B.S. in Forest Pathology in 1981. When Ellen met her future husband, **Brian**, who was studying Wildlife Biology, they were both juniors at **SUNY-ESF**. They were married a week after their graduation.

A peripatetic first decade of marriage

Over the next ten years, the couple was to live in five states. Their first move, from Syracuse, NY, to St. Paul, MN, was to begin their graduate studies at the **University of Minnesota**. It was during this time that Ellen became interested in a parasitic rust disease, wanting "*to save the poor, sick trees*," she says. Ironically, she was to discover that the trees in question were being grown as a monoculture crop, and destined for the paper mill.

Ellen and Bryan Cypher at Wind Wolves, 2021 with Liana.

In St. Paul, Ellen completed the graduate course work for her M.S. in Plant Pathology (1981-83). After that came a move to University Park, PA, where Ellen worked as a research technician at **Pennsylvania State University** (1983-86), while Brian continued his graduate studies. The couple's next move took them to Carbondale, IL. There, at **Southern Illinois University** (1986-89, full-time; 1990-93, part-time), Ellen earned her Ph.D. in Plant Biology under **Dr. Robert Mohlenbrock**, with a minor in Zoology, while Brian completed his Ph.D. in Zoology, with a minor in Botany.

A new chapter: California, here we come!

In 1990 Ellen and Brian began a new chapter of their lives. They moved to California, where they would both become involved in research and conservation efforts on behalf of endangered plants and animals in California's Central Valley and southern Sierra Nevada foothills. Already partners in life, they would also become partners in work, their complementary fields of expertise allowing them to collaborate on many projects over the years, as they also pursued their separate careers.

Brian began his career at the **Elk Hills Naval Petroleum Reserve**, later becoming a Research Ecologist and eventually, Director of the **California State University - Stanislaus Endangered Species Recovery Program (ESRP)**, where he coordinated research on the **San Joaquin kit fox**. While his research emphasis would be on canids and other predators, his experience would also include work with small mammals, reptiles, ungulates, and plants. Ellen would serve as Research Ecologist/Botanist for the **Endangered Species Recovery Program** (1992-2005) and as Regional Botanist, Central Region, **California Department of Fish and Wildlife** (2005-2014).

An accomplished career in botany and ecology

Ellen's CV includes impressive lists of reports, publications, and presentations on her research. Here are just a few intriguing titles:

> "***Lessons learned from over twenty years of habitat restoration on retired farmlands in the San Joaquin Valley***"
>
> "***The decline and rise of the Bakersfield cactus***"
>
> "***The San Joaquin Desert of California: ecologically misunderstood and overlooked***"
>
> "***Posies, parasites, and prickles: recovery of endangered plants in the San Joaquin Valley, California.***"

Ellen is also particularly proud of the "***Recovery plan for vernal pool ecosystems of California and southern Oregon***," for which she wrote the species accounts and recovery strategies for the 25 plants (of a total of 33 taxa).

Asked what she would consider her greatest achievement, Ellen says it would be the 1998 "***Recovery Plan for Upland Species of the San Joaquin Valley, California,***" for which she was one of eight coauthors. Since this was one of the first "*ecosystem*" recovery plans, the authors didn't have many examples to follow. Also, the SJV recovery plan included 34 taxa, which was "*the largest number of species in a single plan at the time,*" says Ellen. Her contribution to the plan was significant, as she "*was solely responsible for writing the species accounts and recovery strategies for 18 of the 19 plants.*"

From Ellen's research also came an important discovery, which she describes as "*demonstrating that the burrow systems of endangered* ***kangaroo rats*** *(*Dipodomys ingens*) influence the distribution, phenology, size, and/or reproductive output of three endangered plant taxa:* ***California jewelflower*** *(*Caulanthus californicus*),* ***San Joaquin woolly-threads*** *(*Monolopia congdonii*), and* ***Kern mallow*** *(*Eremalche parryi ssp. kernensis*).*"

In the course of a career spanning more than thirty years, Ellen Cypher devoted not only her work, but also her volunteer time, to the conservation of endangered species. She joined the **California Native Plant Society** in 1990, and has served the **Kern County Chapter** in various capacities: Program Chair (1992-1994); Rare Plant coordinator (1995); Vice-President (1994 and 1997); and President (1997-1999). She has also served as a Director-at-Large (1998-1999) for **CNPS**; a member of both the **Central California Resource Advisory Council** (1995-2001) and the **Carrizo Plain National Monument Advisory Council** (2003-2016), for the **U.S. Bureau of Land Management**; and both Board Member and Secretary of **Friends of the Carrizo Plain** (2018-present).

Another new chapter: fun and fulfillment in retirement

Ellen has been mostly retired since 2014, but native plants and endangered species have continued to play a role in her life. She has continued to do consulting work for ESRP, but has enjoyed having the time to botanize "*for fun*" and refresh her acquaintance with plants that grow elsewhere in California--"*playing with desert plants,*" for example. In addition, Ellen likes having more time to read, cook, garden, hike, and explore. Her retirement activities have also included helping second-graders with their reading, as well as taking classes in ceramics, conversational Spanish, and digital photography. Now, she is looking forward to living in a part of California that has long attracted her--a

Photos by Brian Cypher

A burrow belonging to **giant kangaroo rats**, surrounded by profusely blooming **California jewelflower** *(Caulanthus californicus)*

The species influenced by kangaroo rat burrow systems — clockwise from left: **Kern mallow**, **California jewelflower** *and* **San Joaquin woolly-threads**.

Above: One of the endangered **kangaroo rats** (*Dipodomys ingens)* surrounded by the plants whose "*distribution, phenology, size and/or reproductive output*" are influenced by burrow systems he/she creates.

Ellen Cypher, San Diego, October 2023

place close to the ocean and redwoods, with a temperate climate year-round.

Ellen Cypher has devoted her life's work to the endangered flora and fauna of our region of California. We in Kern CNPS have been fortunate to be able to benefit from her knowledge and expertise over the years, enjoying and learning from field trips she has led and presentations she has made. Ellen has truly been a gift to the native plants of our area and to our chapter of CNPS. Our heartfelt thanks and very best wishes go with Ellen and Brian Cypher as they begin another new chapter of their life together. ✿

Chapter Meetings

upcoming TOPICS

Thursday, January 18, 2024 - 7pm
ANNUAL POTLUCK
Bring photos of your native-planted yards to share **-** on a flash drive.

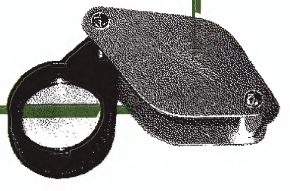
Thursday, February 15, 2024 - 7pm
Presenter: Tammie Meyers,
California Water Service
Topic: Water-wise Planting

Thursday, March 21, 2024 - 7pm
Presenter: Maria Veteri,
The Nature Conservancy
Topic: The Randall Preserve

All in-person chapter meetings are held the **3rd Thursday** of each month.

Place: Most 3rd Thursday meetings will be held in the Larry E Reider Bldg., 2000 K St. **Park in the parking structure east of the building and enter from doors on that side**. Front doors lock at 5 pm. Check for signs indicating in which room meeting will be.

Meeting times: 6 –8:30 pm:
6 pm - Socializing, plant ID and gardening discussion groups; bring snacks
7 pm - Program presentation and a short business meeting. Ideas for speakers are welcome. Contact **Paul Gipe** (*pgipe@igc.org*). ✿



California Native Plant Society

CNPS is the leader for providing reliable information on California native plants and plant conservation. Comprehensive information about California's flora and vegetation communities is available throughout the state for conservation and educational purposes. CNPS's leadership influences personal ethics and actions, as well as public policy for native plant protection.

Kaweah red native grape showing off its fall color while growing in **Sasha** and **Andy Honig**'s garden.

President's Message: Ephedra novelties in the Piute Mountains of Kern County[1]

by Richard Spjut

THE GENUS *EPHEDRA* (EPHEDRACEAE), IS a gymnosperm commonly known as **joint firs**. The genus is known from fossils dated more than 100 million years ago (mya), a time in the Cretaceous period when dinosaurs were roaming our planet. Despite the long evolutionary history of *Ephedra*, only about 56 species are generally recognized, since they diversified 30 mya. They spread from their ancestral homeland in the Mediterranean region of Europe and northern Africa to eastern Asia and from there to North America and on to South America, or perhaps they also spread west from Europe to South America via eastern North America[2]. Their geographic range is indicated in green on the world map (Wikipedia).

In Kern County, three species of *Ephedra* are recognized, ***E. californica***, ***E. nevadensis***, and ***E. viridis***. In addition I suspect the Death Valley *Ephedra* (***E. funerea***) may also occur here, most likely in the Piute Mountains with other relicts such as *Forsellesia* (Crossosomataceae).

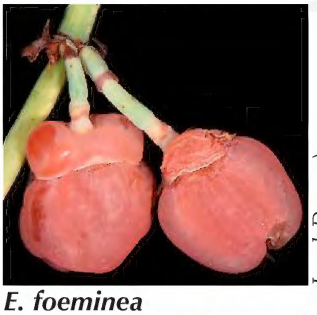
Ephedra species are classified by whether they have **two or three nodal leaves**; by **whether the stems grow closely parallel or branch at wide angles**; **whether the stem is more grayish than yellowish** in its green color; and **by seed number** (1 or 2 per floral cone) **and shape**. However, in the 2014 and 2015 September issues of the *Mimulus Memo*, I suggested other taxonomic differences — such as **stems appearing more square than round in x-section**; **longer-stemmed-leaves and seed-cone stalks than described**; **two kinds of leaves on the same plant** (image at end); and **seasonal differences in development of leaves and cones**. These character features indicate more species of *Ephedra* occur in Kern County as I have proposed on the **World Botanical Associates** webpage (*http://www.worldbotanical.com/ephedra.htm*).

Additionally, there is a **non-native** *Ephedra* I photographed along Erskine Creek in May 2012, at which time I was accompanied by **Dorie Giragosian** and **Clyde Golden** on a CNPS chapter field trip. I recently concluded that this plant is ***E. foliata***, a species found mainly in the semiarid regions of northern Africa, Europe and Asia, but not reported in California. However, it is cultivated in India, and likely in California[3]. Thus, it may have been cultivated near Lake Isabella. An example is the non-native ***E. foeminea***, an Eurasian - north African species found growing in Santa Barbara County where possibly naturalized (CCH2). It is distinguished from all other California species by the red fleshy bracts (JM2), which are likely dispersed by birds.

California Ephedra and **Death Valley Ephedra**. **Top left:** ***E. californica***, near the mouth of Kern River Canyon – plant in lower right foreground. **Top right:** ***E. funerea***, Dante's View, Death Valley National Park. **Below:** Pollen and seed cones of each species respectively.

Although developed pollen cones were evident in photo of one plant (not shown), seed of the Erskine Creek plants were not evident. In *E. foliata*, seeds may appear black covered by white to pinkish fleshy bracts.

I also photographed a plant similar in habit to the Erskine Creek *Ephedra* a month later (7 June 2012) along the Pacific Crest Trail northeast of Te-

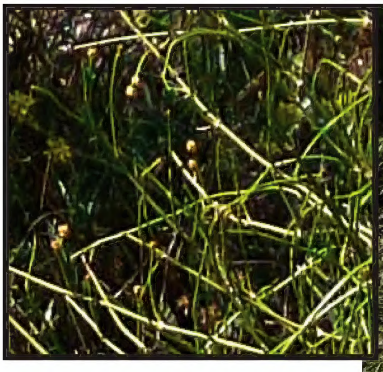


E. foeminea

E. foliata

photos by Ori Fragman-Sapir on JungleDragon)

Nevada Ephedra and **Green Ephedra**. **Above, far left:** *E. nevadensis*, Walker Lake, NV and pollen (top) and seed cones (below) from separate plants. **Above, far right):** *E. viridis*, Walker Pass along Hwy 178, Kern Co., CA, plant with pollen cones, but no leaves when photo was taken in April. **To its left above**: *E. viridis* with leaves but no cones in September; leaves mostly opposite (2 per node), occasionally whorled (3 per node). **Below:** portion of another plant photographed in April near Walker Pass with seed cones; thus, it appears that leaves develop in the summer-fall and seeds develop in the spring after leaves are gone.



Ephedra foliata – **Center image:** One of three plants observed along east side of Erskine Creek on talus at base of cliff during CNPS field trip I led, accompanied by chapter members Dorie Giragosian and Clyde Golden, 8 May 2012. They stayed on the west side of the creek while I crossed to explore the rock walls, which were obscured by riparian vegetation. **Far left:** An enlarged portion of the center image to show small cones. **Right Image:** from ***Flora of Qatar*** website to show the remarkable similarity to the Erskine Creek ephedra.

Variation in leaf shapes on ***Ephedra*** cf ***viridis*** collected along south side of Kern River just below Lake Isabella dam. Leaves either mostly green with long linear extension to obtuse apex, or mostly a hyaline oval sheath with mid-nerve extended shortly into an acute apex.

Ephedra cf ***viridis*** with unusally dense pollen cones, growing near Bishop, CA. Photo taken May 4, 2008.

hachapi. (See photo on WBA website.) While it may be argued that *Ephedra* species can vary considerably in their habit, and the morphology of their stems and leaves, the combination of traits that I present here for the Erskine Creek plants agree more with *E. foliata* as seen in images of a plant in Qatar, and of a herbarium specimen on **SEINet** taken from a cultivated plant in India.

Eurasian species of *Ephedra* contain alkaloids, **ephedrine** and **pseudoephedrine** that have been used as dietary supplements, mainly for weight loss. The drug, ephedrine, is also used to prevent low blood pressure during spinal anesthesia. The plants were once banned from the US, and one might expect individuals to grow their own from plants imported from abroad, while it may be also noted that *E. foliata* was reported to have only a trace of the poisonous alkaloids, which are absent in U. S. species. The taxonomy of Eurasian species is problematic as also the case for those in North America. ✿

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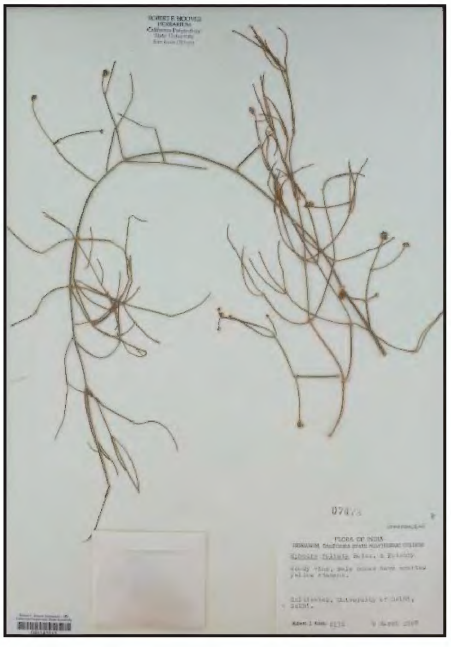
Ephedra foliata Boiss. ex C.A. Meyer. **Below left**: Herbarium specimen at California State Polytechnic College from SEINet, label in lower right titled *Flora of India*, reported to have been collected by Robert J. Rodin 8112, 9 March 1967, "cultivated," "University of Delhi." **Below far right:** WBA herbarium specimen in part from plant in image on previous page showing the distinctive long-stalked cones. Specimen previously identified *Ephedra* cf. *pedunculata*, on WBA webpage, a species with vine-like growth that occurs in southern Texas and northern Mexico. **Lower center:** Photo of plant in part with seed covered by white fleshy bract from. *eflora of India*, *https://efloraofindia.com/2013/12/26/ephedra-foliata/*



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A bisexual *Ephedra* plant. A rare occurrence found in a *E.* cf *viridis* plant collected in Squirrel Canyon. Male and female cones on the same plant and also one with both male (microsporangia) and female (1-2 seeds) flowers in the same cone; the male appear to have aborted development in producing pollen. Bisexual cones have been described for ***E. foeminea***: "*In* ***E. fragilis,*** var. ***campylopoda,*** [synonym], *the strobilus is bisexual, with male flowers in the axils of the lower pairs of fertile bracts and ovules in the axils of the uppermost pair. The latter, however, never reach full development.*" (Thoday and Berridge 1912).

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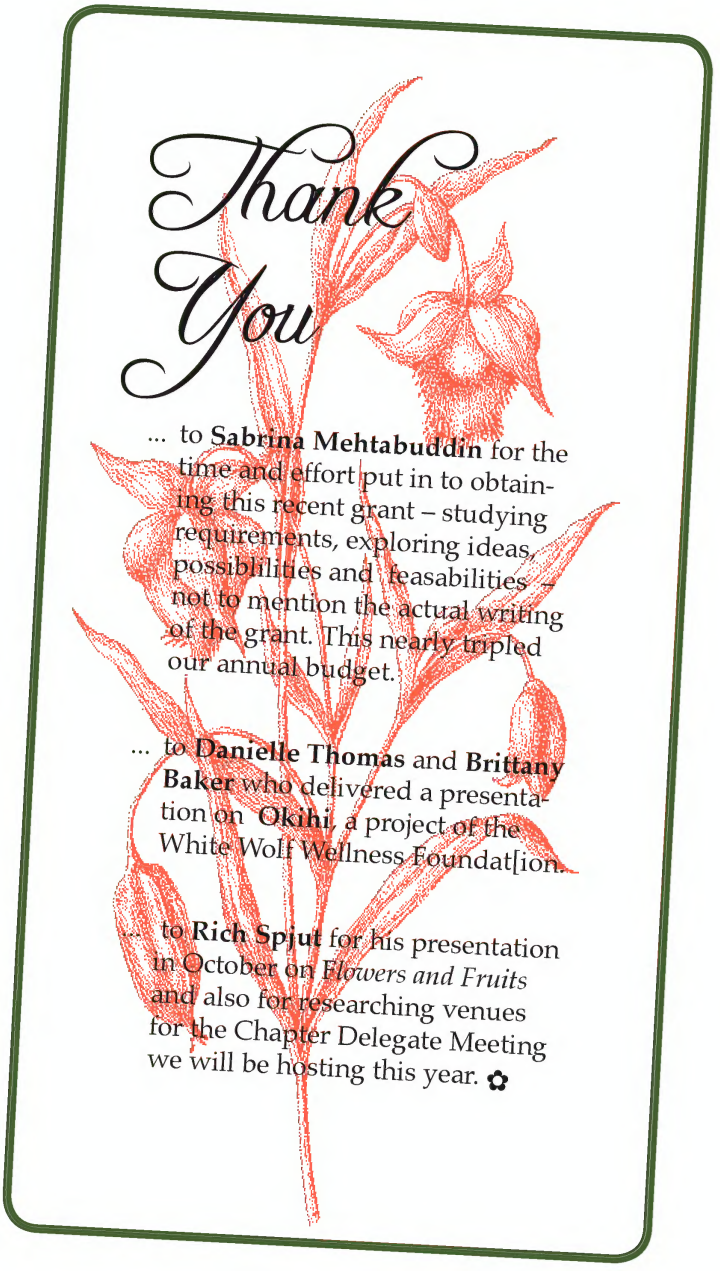
ENDNOTES

[1] Cf. Note: cf. is a standard abbreviation for "confer" or "compare", used in this contribution when the author considers the plant could be a a different species.

[2] Palynodata, a palynological data on fossilized pollen has numberous reports on *Ephedra* pollen from Tertiary deposits in the southeastern U.S.

[3] A. S. Foster (1972) who published on **Venation patterns in the leaves of *Ephedra*.** (J. Arn. Arb. 53: 364-78), reportedly collected live "shoots" of *E. foliata* from the UC Berkeley Botanical Garden, and also used UC Herbarium specimens; however the garden database does not currently list the species. Similarly, San Marcos Growers Nursery in Santa Barbara once reported cultivating *E. foliata*, but their database only lists *E tweedieana*, a South American species similar in habit and fruit to *E. foliata* but differing in seedcones being sessile. It seems likely that both these species along with *E. foeminea* are cultivated in California.


Thank You
... to **Sabrina Mehtabuddin** for the time and effort put in to obtaining this recent grant – studying requirements, exploring ideas, possibilities and feasabilities – not to mention the actual writing of the grant. This nearly tripled our annual budget.
... to **Danielle Thomas** and **Brittany Baker** who delivered a presentation on **Okihi**, a project of the White Wolf Wellness Foundat[ion.
... to **Rich Spjut** for his presentation in October on *Flowers and Fruits* and also for researching venues for the Chapter Delegate Meeting we will be hosting this year. ✿

Found in the News:
"Flowers 'giving up' on scarce insects and evolving to self-pollinate"

Excerpted and abridged from The Guardian 12-20-23

A STUDY HAS FOUND THAT THE FLOWERS OF FIELD PANSIES GROWING NEAR PARIS ARE 10% *SMALLER and produce 20% less nectar than flowers growing in the same fields 20-30 years ago. They are also less frequently visited by insects."*

The millenia-long relationship linking flowers and pollinators may be eroding due to the decline in pollinators over the last 50 years. Flowering plants appear to be evolving to not need pollinators and to rely on self-pollination. Other plants which have difficulty switching to self pollination seem to be trying other tactics, like producing more pollen for the fewer number of pollinators visiting them.

Article: *https://www.theguardian.com/environment/2023/dec/20/flowers-giving-up-on-scarce-insects-and-evolving-to-self-pollinate-say-scientists*

Original Study: *https://nph.onlinelibrary.wiley.com/doi/full/10.1111/nph.19422.* ✿

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The **Kern Chapter of the California Native Plant Society** currently meets the **3rd Thursday of each month**. Chapter website: *kern.cnps.org*

The **California Native Plant Society** is a non-profit organization dedicated to the conservation of California native plants and their natural habitats, and to increasing the understanding, appreciation, and horticultural use of native plants.

CNPS has **31 chapters** throughout the state and membership is open to all persons – professional and amateur – with an interest in California's native plants. Members have diverse interests including natural history, botany, ecology, conservation, photography, drawing, hiking and gardening. As a Kern County resident, your membership includes **Flora Magazine**, a quarterly journal with interviews, conservation updates, gardening advice. **Artemesia**, CNPS's scientific journal and **The Mimulus Memo**, the Kern Chapter newsletter published four times a year in January, March, June and September.

Join CNPS or renew your membership online at *cnps.org* **Membership levels:** $25, $50, $120, $500 ($25 minimum)Go Perennial at $5/month

To **unsubscribe/subscribe** to Kern CNPS email communications members should select the "unsubscribe" link at the bottom of the email.

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California Native Plant Society
KERN CHAPTER

Mimulus Memo

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